WASTE MANAGEMENT: ENVIRONMENT, HEALTH AND SAFETY ISSUES (7446)

ENVIRONMENT HEALTH AND

SAFETY

# Supplementary Material

**Spring*, 2025***

**Allama Iqbal Open University**

**Department of Nutritional Sciences & Environmental Design**

**ALLAMAIQBALOPENUNIVERSITY**

**Department of Nutritional Sciences & Environmental Design**

**Course: Waste Management: EHS Issues (7446) Semester: Spring 2025 Level: PGD Credits: 3(3+0)**

## CONTENT LIST

This study guide includes the following items:

1. Course Outline Units 1-9
2. Tutor Guide
3. Student Guide
4. Assignments (1 & 2)
5. The schedule for lectures and submitting the assignment will be available on the AIOU Aaghi portal.
6. The above-listed material will be available on the AIOU website under the relevant section.

If any of the above-mentioned material is missing, please contact the program/course coordinator:

Program Coordinator

PGD Environment, Health & Safety Program Allama Iqbal Open University, Block 6

H-8 Islamabad

**WASTE MAANGEMENT: ENVIRONMNET, HEALTH AND**

**SAFETY ISSUES**

**COURSE OUTLINE**

## REFERENCE BOOKS:

1. Goodship, V., & Stevens, A. (Eds.). (2012). Waste Electrical and electronic equipment (WEEE) handbook. Elsevier.
2. Chandrappa, R., & Das, D. B. (2012). Solid waste management: Principles and practice. Springer Science & Business Media.

**Unit – 1: Introduction:**

* 1. Need and Importance of Waste Management
  2. Waste Management in Pre & Post Industrialization
  3. National and International Regulations
  4. Framework and Financial Issues in Waste Management

**Unit – 2: Waste Quantities and Characteristics:**

* 1. Sources
  2. Physical Characteristics
  3. Chemical Characteristics
  4. Biological Characteristics

**Unit – 3: Biomedical and Hazardous Waste:**

* 1. Nosocomial Infection and Health Burden Due to Biomedical Waste
  2. Storage and Transportation of Biomedical and Hazardous Waste
  3. Treatment of hazardous waste
  4. Disposal of Hazardous Waste

**Unit – 4: Waste from Electrical, Electronic Equipment, Industrial & Commercial Activities:**

* 1. Characteristics and Quantity of Electrical and Electronic Waste
  2. Storage and Disposal of Electrical and Electronic Waste
  3. Treatment
  4. Safe Disposal

**Unit – 5: Radio Active Waste:**

* 1. Classification, Characterization & Pre-Treatment
  2. Treatment and Storage
  3. Disposal
  4. Surveillance and Monitoring

**Unit – 6: Precautionary Measures:**

* 1. Precautions during Manual Operation
  2. Precautions for Moving Materials Mechanically
  3. Control measures
  4. Training & Documentation

**Unit – 7: Safety during Storage and Transport:**

* 1. Safety during Storage of Waste
  2. Safety during Transportation of Waste
  3. Safety during Retrieval
  4. Material Safety Data Sheet

**Unit – 8: Safety during Treatment and Disposal:**

* 1. Safety Issues During Treatment
  2. Safety Issues in Dumpsite
  3. Safety Issues in Landfill
  4. Safety Issues in Incinerator

**Unit – 9: Work Permit, Education and Training:**

* 1. Work Permit System
  2. Safety Education and Training
  3. Safety Promotion
  4. Safety Publicity

# Student Guide

Dear student, Assalam-o- Alaikum,

We welcome you to the PGD in Environment Health and Safety course entitled “Waste Management: Environment, Health and Safety Issues”. This course is part of your PGD program. For introduction to the course please go through the guidelines provided here for successful completion.

To understand the course content it is vital to know its aims and objectives properly. Let’s go through its aims and objectives first.

### Course Objectives

* + 1. To develop an understanding of the concept of waste management, characterize the wastes produced and differentiate the critical aspects associated.
    2. To explore hazards associated with waste management.

### Details of the Course

**Unit no. 1** describes the importance of importance of waste management, national & international regulations and financial issues.

**Unit no. 2** explains the different sources of waste and its physical, chemical and biological characteristics.

**Unit no. 3** defines biomedical and hazardous waste. It also discuss the collection, storage, transportation and treatment of biomedical and hazardous waste.

**Unit no. 4** elucidates the generation of E-waste from industrial and commercial activities.

**Unit no. 5** describes safety issues in the collection, storage and disposal of radioactive waste.

**Unit no. 6** helps to understand control measures during manual operations for moving waste materials mechanically.

**Unit no. 7** explains different steps involved in safety during storage and transportation of waste. **Unit no. 8** focuses on the safe system of work during the treatment and disposal of waste in different waste treatment methods.

**Unit no. 9** describes basic requirements (work permit, education and training) related to safe handling and storage of waste.

This course will, therefore, inculcate the basic information of occupational health and safety including basic requirements of national and international standards that govern occupational health and safety.

### Part-Time Tutors

Students have been allocated a part-time tutor. The name and address of your tutor will be provided to you. The tutor will help and guide you in studying the books and conducting activities related to study units. You are expected to take full advantage of the tutor’s knowledge and experience. These tutors are also responsible for marking your assignments.

Make all efforts to complete your written assignment according to the prescribed schedule and try your level best to attend all the study sessions according to the timetable provided to you.

Schedule for lecture sessions have been arranged online on LMS on weekly basis. Try to attend these sessions regularly to get proper guidance from your tutor.

### Assignments

The course includes two assignments, which are compulsory for successful completion of the whole course. Each assignment is of 100 marks and out of these students obtaining 40 marks will be declared pass.

**Assignments no. 1& 2** are theory-based and must reach your assigned tutor before the due date. The schedule for submitting the assignments is provided separately. Please follow the schedule and upload soft copy of your assignments accordingly so that tutors are able to submit result accordingly.

### Method of Study

Study period of 16 weeks has been allocated for studying this course through blended learning (online mode) whereas 17th and 18th weeks are kept for general assessment and for final examination.

|  |  |  |
| --- | --- | --- |
| **Units** | **Assignments** | **Study period** |
| 1-2 |  | 4 weeks |
| 3-5 | Assignment 1 | 4 weeks |
| 6-7 |  | 2 weeks |
| 8-9 |  | 2 weeks |
| Revision | Assignment 2 | 4 weeks |
| Preparation for examination |  | 2 weeks |

You are expected to spend four weeks studying the first two units, this will help to improve your reading speed and get familiar with the contents of the units. The next three units 3 to 5 will become easier for you and you will be able to study them in comparatively less time. You can spend four weeks on studying these four units, during the ninth week you can study unit no.6 & 7 and during the tenth week you must complete your first assignment and upload this on the Aaghi portal. Units 8 to 9 can be studied during the 11th and 12th week respectively and you can complete your second assignment along with the revision of your book during the weeks 13-16. The last two weeks will be kept for examination and preparation.

### Final Examination

At the end of the course there will be a final examination, all the students will be expected to take this examination in the examination halls especially established for this purpose.

For any queries, you can write to the course/program coordinator. Suggestions for improvement will also be welcomed.

We wish you all the best.

Course Coordinator

Department of Nutritional Sciences & Environmental Design Allama Iqbal Open University,

H-8, Islamabad

# Tutor Guide

Dear tutor,

Students enrolled in PGD Environment Health and Safety offered through the blended learning (online) system belong to a number of professions and have a variety of educational backgrounds and experience.

These students have very limited contact with their course mates and the part-time tutors. It is therefore important to keep in mind that some of the blended-learning students have had no links with education during the past few years after completing their formal education therefore they might lack confidence. Secondly blended-learning students are involved in studying during their spare time, probably after office hours. You are therefore requested to guide and help the students while keeping these issues in mind. Some students may need help in developing professional attitudes as well as understanding the facts about environmental, health and safety.

### Assignments

In the online Aaghi LMS system, studying the course units has its importance but assignments are the major source of link between tutor and the student. Therefore it is important to offer your comments through these assignments. Express your views in such a way that the student is not discouraged hurt or depressed after going through your comments. You are also expected to guide on issues like methods of solving assignments, effective methods of studying and methods to improve study habits and working hard. It is anticipated that the student will submit their assignments in time on the Aaghi LMS portal according to the prescribed schedule.

***You are therefore requested to mark the assignments and upload on Aaghi LMS portal prior the last date provided by University.***

Marking guides are provided to you. You are expected to follow the instructions and make full use of these guides while marking the assignments. The students are expected to avoid giving unnecessary details and try to be brief and comprehensive. While marking the assignments the tutor has to assess whether the students have followed the instructions provided to them or not. The students are given another assignment which is based on a small field activity in which student will be representing their work in the lectures held at the end of the semester. The students are required to submit their assignment online through Aaghi LMS to you before it is presented.

### Marking Guide

The tutors are expected to mark the assignments carefully and follow a similar marking standard for all the students. For the theory-based assignments you are requested to follow the marks division as indicated on the assignment, making a total of one hundred for each Assignment. The questions that are further divided into parts a, b etc. accompany a further division of marks as well. For marking of assignments, the allocation of marks is indicated as under:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.**  **No** | **Assignment**  **Number** | **Component** | **Total Marks** |  |
| 01 | 01 | Theoretical Questions | 100 | 200 |
| 02 | 02 | 100 |
| 03 |  | Presentation | Presentation and 70% attendance is mandatory. | |
| Attendance |

Teachers are expected to stick to the guidelines provided to maintain standardization and uniformity.

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## ALLAMA IQBAL OPEN UNIVERSITY

**Department of Nutritional Sciences & Environmental Design**

**WARNING**

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM THE AWARD OF DEGREE/ CERTIFICATE IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE’S OWN WILL BE PENALIZED AS DEFINED IN THE “AIOU PLAGIARISM POLICY”.**

**Course: Waste Management: Environment,**

**Health and Safety Issues (7446) Level: PGD**

**Semester: Spring, 2025**

**Please read the following instructions for writing your assignments.**

1. All questions are compulsory and carry equal marks but within a question, the marks are distributed according to its requirement.
2. Read the question carefully and then answer it according to the requirements of the questions.
3. Handwritten scanned assignments are not acceptable.
4. Upload your typed (in Word or PDF format) assignments on or before the due date.
5. Late assignments can’t be uploaded at LMS.
6. Your analysis and synthesis will be appreciated.
7. Avoid irrelevant discussion/information and reproducing from books, study guides or allied material.

**Total Marks: 100 Pass Marks: 40**

# Assignment No. 1

**(Units: 1-4)**

* 1. Define Waste Management. Explain the importance of waste management in the pre and post-industrialization era. **(20)**
  2. Explain sources and types of waste generated in two different workplaces. **(20)**
  3. Pakistan is facing serious biomedical waste management issues. Discuss EHS issues related to poor management of biomedical and hazardous waste with examples. **(20)**
  4. What safety measures are to be taken during collection, storage, transportation and treatment of E-waste? Explain in detail. **(20)**
  5. Explain workers' and employer responsibilities in waste management. Also, discuss direct costs that might arise from poor waste management at the workplace. **(20)**

**Total Marks: 100 Pass Marks: 40**

# Assignment-2

**(Units: 5-9)**

* 1. Define Radioactive waste. Discuss different types of health and safety risks involve in the collection, storage and treatment of radioactive waste. **(20)**
  2. What are the challenges in the development of effective waste management in Pakistan? How to overcome these challenges to develop an effective waste management system. **(20)**
  3. Explain in detail EHS issues during storage and treatment of hazardous and non-hazardous waste material in a workplace environment. **(20)**
  4. Incineration is considered to be effective treatment method for Hospital waste. Explain the situation regarding Pakistan scenario? **(20)**
  5. Identify the industry generating more waste material in your nearby industrial area. Suggest control methods to overcome this problem. Provide recommendations regarding your case study. Also, Prepare at least 10 PowerPoint slides to present in the **online class on the Aaghi portal**. **(20)**

**General Instructions**

* + 1. Assignment 2, Q 5 is of a practical nature, you have to prepare a report and present it.
    2. The presentation component is mandatory for all the students. You cannot sit in the final examination without completing this project and presenting it.
    3. Your report should cover both theoretical and practical components.
    4. Include the following sections in your report:
       1. Introduction and objectives of your study
       2. Field research strategy/ methodology
       3. Review of relevant literature
       4. Graphical representations
       5. Analysis/Conclusion/Suggestions
       6. Appendices/ Bibliography

1. As the student is supposed to do a presentation to the resource person and coursemates, he should prepare slides or other illustrative material for effective presentation.
2. You are advised to consult with source material frequently as you undertake your design project. If you need any guidance you may contact your tutor or write to the Program /

Course Coordinators.